

MATHEMATICS OF COMPUTATION

TABLE OF CONTENTS

JULY 1991

James H. Bramble, Joseph E. Pasciak, Junping Wang, and Jinchao Xu, Convergence estimates for product iterative methods with applica- tions to domain decomposition	1
James H. Bramble, Joseph E. Pasciak, Junping Wang, and Jinchao Xu, Convergence estimates for multigrid algorithms without regularity as- sumptions	23
Eugene O'Riordan and Martin Stynes, A globally uniformly convergent finite element method for a singularly perturbed elliptic problem in two dimensions	47
Clint N. Dawson, Qiang Du, and Todd F. Dupont, A finite difference domain decomposition algorithm for numerical solution of the heat equation	63
R. H. Nochetto, M. Paolini, and C. Verdi, An adaptive finite element method for two-phase Stefan problems in two space dimensions. Part I: Stability and error estimates	73
J. de Frutos, T. Ortega, and J. M. Sanz-Serna, Pseudospectral method for the "good" Boussinesq equation	109
M. D. Gunzburger, L. Hou, and T. P. Svobodny, Analysis and finite element approximation of optimal control problems for the stationary Navier- Stokes equations with distributed and Neumann controls	123
Dietmar Kröner, Absorbing boundary conditions for the linearized Euler equations in 2-D	153
Frédéric Coquel and Philippe Le Floch, Convergence of finite difference schemes for conservation laws in several space dimensions: the cor- rected antidiffusive flux approach	169
H. W. J. Lenferink and M. N. Spijker, On a generalization of the resolvent condition in the Kreiss matrix theorem	211
H. W. J. Lenferink and M. N. Spijker, On the use of stability regions in the numerical analysis of initial value problems	221
B. Garcia-Archilla and J. M. Sanz-Serna, A finite difference formula for the discretization of d^3/dx^3 on nonuniform grids	239
Jim Lawrence, Polytope volume computation	259
L. Reichel, G. S. Ammar, and W. B. Gragg, Discrete least squares approx- imation by trigonometric polynomials	273
J. C. Fiorot and J. Tabka, Shape-preserving C^2 cubic polynomial interpo- lating splines	291
Peter Alfeld and Maritza Sirvent, The structure of multivariate superspline spaces of high degree	299
Walter Gautschi, A class of slowly convergent series and their summation by Gaussian quadrature	309
Walter Gautschi, On certain slowly convergent series occurring in plate contact problems	325
David R. Hayes, On the reduction of rank-one Drinfeld modules	339

David C. Hung , Even positive definite unimodular quadratic forms over $\mathbb{Q}(\sqrt{3})$	351
Holger W. Gollan , The 5-modular representations of the Tits simple group in the principal block	369
D. S. Dummit , Solving solvable quintics	387
James A. Maiorana , A classification of the cosets of the Reed-Muller code $R(1, 6)$	403
Randall Dougherty and Heeralal Janwa , Covering radius computations for binary cyclic codes	415
Keith Briggs , A precise calculation of the Feigenbaum constants	435
Reviews and Descriptions of Tables and Books	441
McCormick, Editor 29, Allen and Tildesley 30, Wahba 31, Holt and Plesken 32, Chan, Glowinski, Periaux, and Widlund, Editors 33, Díaz, Editor 34, Bowers and Lund, Editors 35, Grossman, Editor 36, Bergum, Philippou, and Horadam, Editors 37	
Supplement to "An adaptive finite element method for two-phase Stefan problems in two space dimensions. Part I: Stability and error estimates" by R. H. Nochetto, M. Paolini, and C. Verdi	S1
Microfiche Supplement	
Randall Dougherty and Heeralal Janwa , Covering radius computations for binary cyclic codes	

TABLE OF CONTENTS

OCTOBER 1991

Patricia Saavedra and L. Ridgway Scott , Variational formulation of a model free-boundary problem	451
R. Temam , Stability analysis of the nonlinear Galerkin method	477
So-Hsiang Chou and Qian Li , Mixed finite element methods for compressible miscible displacement in porous media	507
Richard S. Falk , Nonconforming finite element methods for the equations of linear elasticity	529
Bernardo Cockburn , On the continuity in $BV(\Omega)$ of the L^2 -projection into finite element spaces	551
Jinchao Xu , Counterexamples concerning a weighted L^2 projection	563
Marie-Claude Viallon , Convergence of the two-point upstream weighting scheme	569
Daniele Funaro and David Gottlieb , Convergence results for pseudospectral approximations of hyperbolic systems by a penalty-type boundary treatment	585
Daniele Funaro and Otared Kavian , Approximation of some diffusion evolution equations in unbounded domains by Hermite functions	597
Charles Collins and Mitchell Luskin , Optimal-order error estimates for the finite element approximation of the solution of a nonconvex variational problem	621

I. Lasiecka and R. Triggiani , Numerical approximations of algebraic Riccati equations for abstract systems modelled by analytic semigroups, and applications	639
G. J. Cooper , On the implementation of singly implicit Runge-Kutta methods	663
Roger Alexander , The modified Newton method in the solution of stiff ordinary differential equations	673
Lothar Reichel and Gerhard Opfer , Chebyshev-Vandermonde systems ...	703
Peter Walker , Infinitely differentiable generalized logarithmic and exponential functions	723
Pierre L'Ecuyer and Shu Tezuka , Structural properties for two classes of combined random number generators	735
Helmut Doll and Jim Hoste , A tabulation of oriented links	747
Lawrence C. Washington , A family of cyclic quartic fields arising from modular curves	763
Attila Pethő , Complete solutions to families of quartic Thue equations ..	777
N. Tzanakis and B. M. M. de Weger , Solving a specific Thue-Mahler equation	799
C. J. Smyth , Ideal 9th-order multigrades and Letac's elliptic curve	817
Daniel M. Gordon and Carl Pomerance , The distribution of Lucas and elliptic pseudoprimes	825
Greg Fee and Andrew Granville , The prime factors of Wendt's binomial circulant determinant	839
David Moews and Paul C. Moews , A search for aliquot cycles below 10^{10}	849
R. P. Brent, G. L. Cohen, and H. J. J. te Riele , Improved techniques for lower bounds for odd perfect numbers	857
Reviews and Descriptions of Tables and Books	869
Rutishauser 38, Elden and Wittmeyer-Koch 39, Gunzburger 40, Křížik and Neittaanmäki 41, LeVeque 42, Canuto, Hussaini, Quarteroni, and Zang 43, Heinrich 44, Tangora, Editor 45	
Indexes to Volumes 56 and 57	881
Supplement to "Numerical approximation of algebraic Riccati equations for abstract systems modelled by analytic semigroups, and applications" by I. Lasiecka and R. Triggiani	S13
Microfiche Supplement	
Helmut Doll and Jim Hoste, A tabulation of oriented links	